

## CLAIMS

Having thus described the invention, what is claimed is:

1. A switching device comprising:

a plurality of input ports each being connectable to a corresponding switch adapter;

5 a plurality of output ports;

at least one switch controller for controlling the routing of incoming data packets from said input ports to said output ports;

a congestion controller associated with each of said output ports, each of said congestion controllers being adapted to generate grant information to indicate whether said switch adapters can send a data packet to the associated output port; and

10 a data packet access controller associated with each of said input ports, each of said data packet access controllers being adapted to mark as non-compliant any packet which is erroneously sent by said switch adapters.

- 15 2. The switching device according to claim 1, wherein the data packet access controller additionally comprises a timer wherein data packets which arrive at said input port before a predetermined time interval has passed after the time the grant information signaling non-allowance has been generated are marked as non-compliant.

3. The switching device according to claim 1, wherein each output port comprises an buffer and means for determining a filling degree for said output buffer and wherein the congestion controller is assigned to an output buffer at the output port based on one of the overflow of the buffer filling degree over a first threshold and underflow of the buffer filling degree under a second threshold.

4. The switching device according to claim 1, wherein the grant information comprises one or more bits per output port.

5. The switching device according to claim 1, wherein the grant information of all output ports of the switching device is communicable to each switch adapter.

6. The switching device according to claim 1, wherein the data packets outgoing from the output ports via said switch adapters comprise the grant information.

7. The switching device according to claim 1, wherein the output buffer is a common output buffer with addresses for the data packets, and said switching device comprises an input router and an output router, and an address-manager for managing the use of said addresses of said common output buffer, an output-queue-manager for entering order information, about at which addresses said data packets are stored in said common output buffer, into output queues which are connected to said output router.

8. The switching device according to claim 7, wherein the output queues provide in total more queuing places for the order information than the common output buffer has addresses.

9. A method of controlling the routing of data packets through a switching device having a plurality of input ports and a plurality of output ports, each of said input ports being

connectable to a corresponding switch adapter, and having at least one switch controller for controlling the routing of incoming data packets from said input ports to said output ports, comprising the steps of:

generating for each output port grant information which signals whether said switch  
5 adapters are allowed to send data packets to said output port; and

marking data packets as non-compliant which are received at said input port when said  
switch adapters erroneously send said data packets from said output port.

10. The method according to claim 9, wherein data packets are marked as non-compliant  
only after a predetermined time interval has passed from the time the grant information  
10 signaling non-allowance has been generated.

11. The method according to claim 9, wherein the grant information is determined by the  
relation of the buffer filling degree of an output buffer at the output port to one of a first  
threshold and a second threshold.

12. The method according to claim 9, wherein the grant information is generated in form of a  
grant bit per output port.  
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13. The method according to claim 9, wherein the grant information for all output ports of  
the switching device is communicated to each switch adapter.

14. The method according to claim 13 wherein the grant information for all output ports of  
the switching device is provided in form of a bit map.

15. The method according to claim 9, wherein the grant information is communicated to the switch adapters by inserting it into the data packets.

16. A method of controlling the routing of data packets through a switching device having a plurality of input ports and a plurality of output ports, each of said input ports being connectable to a corresponding switch adapter, and having at least one switch controller for controlling the routing of incoming data packets from said input ports to said output ports comprising generating for each output port grant information which signals whether said switch adapters are allowed to send data packets to said output port and communicating said grant information with said data packets.

17. The method according to claim 16 wherein the grant information is communicated to the switch adapters by inserting it into the data packets.

18. The method according to claim 16 wherein the grant information is inserted into the headers of the data packets.

19. The method according to claim 16, wherein the grant information is determined by the relation of the buffer filling degree of an output buffer at the output port to one of a first threshold and a second threshold.

20. The method according to claim 16, wherein the grant information for all output ports of the switching device is communicated to each switch adapter.

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